VERIFICATION AND CERTIFICATION
OF
INNOVATIVE ENERGY & ENVIRONMENTAL TECHNOLOGIES

A Vendor's Guide

July 8, 2003

Office of Innovative Technology & Market Development
Division of Science, Research, and Technology
New Jersey Department of Environmental Protection
P.O. Box 409
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VERIFICATION/CERTIFICATION PROCESS

The Energy and Environmental Technology Verification (EETV) Act, as set forth at N.J.S.A. 13:1D-134 et seq., and which became effective on January 18, 2000, authorizes the New Jersey Department of Environmental Protection (NJDEP) to develop and implement an energy and environmental technology verification and certification process. One of the goals of the EETV Act is to foster the development and commercial use of technology-based environmental and energy-related products to abate and prevent environmental pollution and promote energy conservation in a cost-effective manner. To achieve this goal, the EETV Act provides for the certification of an innovative energy or environmental technology that has been verified by a third-party verification entity that has a performance agreement with the NJDEP.

The Verification Process

Within the context of the EETV, "verification" means to conduct evaluation and assessment to confirm that the performance data of the energy or environmental technology meets specific requirements under specific conditions. The verification process begins with the NJDEP whereby the steps, as outlined in its "Certification Technical Manual" guidance document, are applied. The verification process, shown in Figure 1, is divided into two phases referred to as 1) Preliminary Assessment and 2) Regulatory and Technical Evaluation.

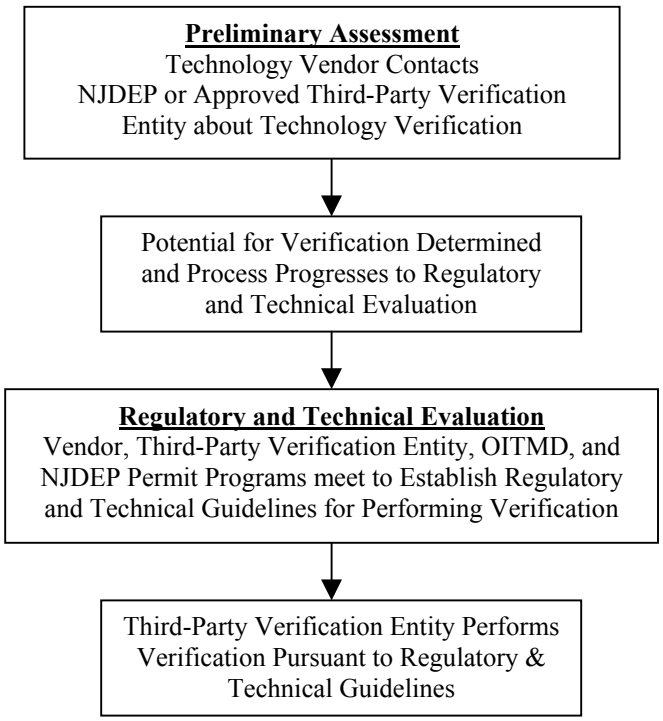

Figure 1. Flowchart of Verification Process

Preliminary Assessment

During the preliminary assessment, the vendor has the option to contact the NJDEP, or an approved third-party verification entity that has a performance partnership agreement with the NJDEP such as the New Jersey Corporation for Advanced Technology (NJCAT), to establish the specific evaluation and verification process for a particular technology. At some point during the preliminary assessment phase, the NJDEP must be consulted to establish the priority for the class of technology to be evaluated and the evaluation protocol, based on the anticipated net beneficial effect and the existing regulatory priorities of the NJDEP.

Regulatory and Technical Evaluation

After establishing that the potential exists for the technology to provide an overall net beneficial effect, the vendor and the verifying entity shall contact the NJDEP's Office of Innovative Technology and Market Development (OITMD) to establish the regulatory and technical framework through which the technology will be verified and certified. The regulatory and technical framework refers to the regulations, and any design and deployment criteria, as establish by the respective NJDEP programs, that will permit the use of the technology. Establishing this framework occurs through a meeting that includes the vendor, the verifying entity, OITMD, and other programs within the NJDEP that will be affected by the use of the technology. The factors that determine the verification of the technology as an innovative energy or environmental technology are as follows:

- The regulatory framework of the NJDEP must be able to permit the use of the technology. Such permitting is driven by the technology's ability to protect the environment, without compromising safety issues.
- The use of the technology will provide a net beneficial effect, which is demonstrated through qualitative and quantitative analyses of the technology's performance to reduce or prevent contaminants in order to improve water quality, provide clean soil, and reduce the emissions of greenhouse gases and other air contaminants. When compared to current methods in use, the technology should provide a significant reduction in the release of contaminants to the environment.
- A technology for which the verification is sought is assumed to have the ability to be fully commercialized. Therefore, the design must be based on sound scientific and engineering principles, and data collection and analyses consistent with accepted quality control and quality assurance methods to satisfy engineering and safety criteria.

The Certification Process

"Certification" refers to NJDEP's acceptance of the innovative energy or environmental technology's verified performance data and claims under specific conditions. Upon

receipt of a technology's verification report, the OITMD begins the certification review process, as outlined in Figure 2.

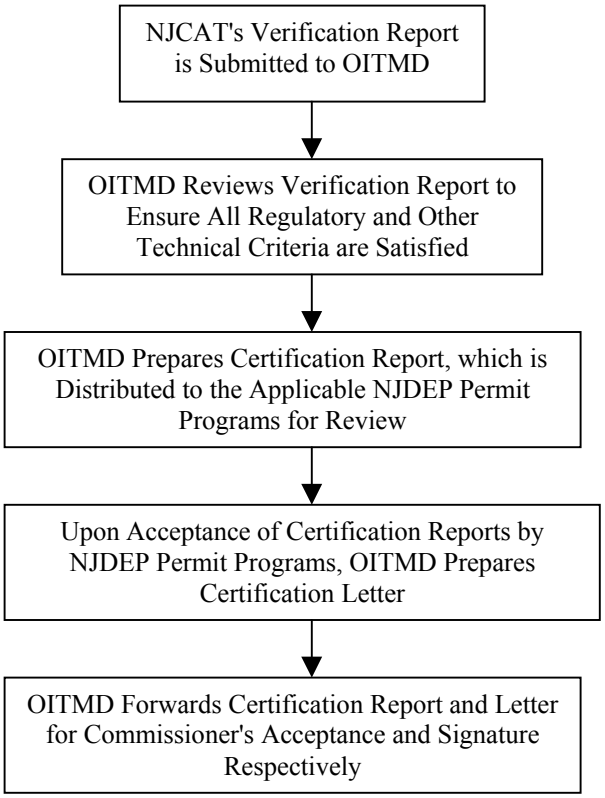

Figure 2. Flowchart of Certification Process

During the certification review process, the OITMD's goal is to determine the efficacy of the technology, as stated in the verification report, by ensuring the following:

Quality Assurance/Quality Control (QA/QC) Analysis
Any Quality Control/Quality Assurance (QA/QC) procedures that are used in the analysis of the performance data and claims are appropriate and most current.

Ecological and Health Risks Assessment
Accurate and acceptable scientific procedures are used in the ecological and health risk assessment analyses, whereby quantitative and qualitative assessments are made of any negative impacts that the use of the technology may have on the ecology or human health. Negative impacts shall not exceed the limits allowed by the regulatory requirements of the NJDEP.

Regulatory Requirements of NJDEP
All NJDEP's permit programs that would be affected shall be consulted to ensure that the regulatory intent and requirements, and any additional technology's design and implementation criteria, for each program have been satisfied.

Net Beneficial Effect

The use of the technology shall provide a net beneficial effect (NBE). As described in Figure 3, qualitative and quantitative analyses of the constituents must show that the technology, when compared to existing technologies, uses less raw material, water and energy. In addition, the NBE must show that greenhouse gases and other air emissions are reduced, and wastewater discharges and solid waste generated conform to the appropriate NJDEP permit limits. Equating the innovative technology to existing technologies can be summed up as follows:

$$(IC + OC)_{\text{Innovative Technology}} << (IC + OC)_{\text{Existing Technology}}$$

- With IC and OC for both innovative and existing technologies satisfying the NJDEP Permit Limits.

Figure 3. Net Beneficial Effect Analysis

For Further Information

The NJDEP recommends that vendors wishing to learn more about the verification/certification of innovative energy and environmental technologies, and/or seek assistance with the preliminary assessment of technologies should contact:

Office of Innovative Technology and Market Development
Division of Science, Research, and Technology
New Jersey Department of Environmental Protection
P.O. Box 409
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(609) 984-5418
www.state.nj.us/dep/dsr/oitmd/OITMD.htm

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